PAGE 1 -- SOFTWARE OVERVIEW

SimEnergy -- PROPOSED BY MAXIS

Maxis is a leading producer of simulation products for entertainment. In July 1992, Maxis announced the formation of a new Business Simulation Division that concentrates on bringing the company's award winning game technology to business and education simulations. SimEnergy will be produced by the Business Simulation Division.

SimEnergy will help students to visualize and to experience the following:

1. Connections between everyday actions and the energy and environment systems;

2. Decisions about energy and environment that they make every day;

3. Long-term impact on energy and environment of those decisions;

Students will use SimEnergy to learn through the experience of making choices and receiving feedback about the consequences of their choices. Students will face the difficult job of balancing energy production and consumption to keep their economy strong, while obtaining and using energy and disposing of waste in ways that don't destroy the environment. Several students can play SimEnergy at one time by performing different roles. Autopilots in SimEnergy can fill roles that are not being played, in order to keep game complexity under control.

TOUR OF SimEnergy

Yoshi starts SimEnergy. The buttons, menus, and attractive artwork are very similar to other Maxis games, like SimCity, SimEarth, SimAnt, and SimLife. He chooses his life style by picking a house, car, motorcycle, two TV's, some appliances, and a subway ride to work. Then he decides to have family with two children, Masihiro and Uko. He pushes more controls to select four grandchildren. (The children and grandchildren will come back later in the simulation to tell Yoshi how his present choices affected their lives.) Now SimEnergy asks Yoshi whether his use of energy is about average, or much less than others, or much more.

Before Yoshi begins to play the role of power utility manager, he follows some of SimEnergy's energy paths to see where they lead. He points at his car, next points at a gas pump, then finally a supertanker. SimEnergy shows how these are connected and displays background information. Next Yoshi points at his TV set. SimEnergy shows him the TV's energy costs: how much energy it took to build and how much it takes to operate.

Now Yoshi goes to work, where he is power utility manager. He decides to build a mix of different kinds of power plants. But when his customers complain about high costs, Yoshi decides to spend less on training and safety at his old coal-powered plant. This is a mistake that leads to accidents and reduced efficiency. Yoshi has a problem: complaints about cost led to reduced spending on safety, that led to lower efficiency and higher cost; more complaints followed. The simulation clock advances until twenty simulation-years have passed. Now SimEnergy opens a window to send a message to Yoshi. His family appears (his children have grown up). They tell Yoshi what has happened to them because of the decisions he made. In this case he did fairly good work. They thank him. As Yoshi continues to play, the clock advances. In twenty more years, he'll hear from his grandchildren. What will their lives be like?

Other students can join Yoshi. They can fill the roles of Industry Manager, Environment Scientist, Politician, and others. In class Yoshi can play back a recording of his session, or he can print the diary that he kept in the game to record his decisions and thoughts.

SimEnergy's Relationship to Other Maxis Projects

During the design phase of SimEnergy, Maxis will collaborate with leading academic and industry authorities in the fields of energy and environment. Ideas of educators will also influence our design. Maxis has worked with leading experts on past projects:

Maxis worked with leading thinkers in ecology to produce the scientific framework for SimEarth.

In SimAnt Maxis worked with the foremost expert on Ant Biology.

SimRefinery was produced with design input from top Petroleum and Chemical Engineers and managers from Chevron Oil Company.

SimEnergy will be based on five major simulation models. Maxis has had experience developing and applying each of them.

1. Energy Production -- this model was first developed for SimCity and has been expanded for SimRefinery and in work now underway for an entertainment product, Advanced SimCity, and a business simulation, SimPower.

2. Energy Transmission -- SimCity, Advanced SimCity, and SimPower all use this model.

3. Ecology/Environment -- SimEarth, SimLife use Ecology models and SimEnvironment is based on a preliminary model for assessing the risk of environmental contamination. SimCity uses a local model for simulating air pollution.

4. Global Climate -- Global warming, acid rain, and ozone depletion can be simulated with expansions to the Maxis climate models in SimEarth and SimLife.

5. Rough Economy Model -- SimCity, Advanced SimCity, SimEarth, and SimRefinery all contain economic models that provide a rough overall simulation of an economy tied to environmental and energy supply decisions.

Maxis used Autopilots in SimRefinery to create adjustable controls on the complexity level of those games. This is an area of ongoing research for Maxis, where programming techniques like Fuzzy Logic are being used to create richer and more flexible autopilot behavior.

SimRefinery also introduced a new object-oriented simulation approach that allows the game to show interconnections and process flow between components in the simulation. All Maxis games permit users to get appropriate information just in time to make game decisions by manipulating the objects present in a display (e.g., mouse clicking on a power line).

Maxis simulations have also begun to incorporate tools designed for classroom use. SimLife makes internal information about the simulation (i.e., a state vector) available to programmers for additional experiments. The simulation serves as a classroom laboratory. SimRefinery allows users to create a diary of their decisions and experiences during the simulation. SimRefinery and SimEnvironment both allow teachers or students to produce recordings of their simulation runs, which can be annotated and played back by others. This allows teachers to rapidly create scenarios or lessons with the simulator, without programming.

Finally, the art direction of SimEnergy will be guided by lessons learned in producing projects like SimEarth, SimAnt, and SimLife. The user interface in SimEnergy will be closely related to the award winning Maxis interfaces that have been played by millions of people around the world.

PREVIOUS MAXIS PRODUCTS:

* **SimCity** -- Produced in 1989. SimCity introduced Maxis's style of learn by experience simulations. SimCity's human interface, energy transmission, and pollution models will be similar to the one's used in SimEnergy.

* **SimEarth** -- Produced in 1990. SimEarth's global climate and atmosphere models are similar to what is planned for SimEnergy. The appearance of SimEarth's control panels will also serve as models for SimEnergy.

* **SimAnt** -- Produced in 1991. SimAnt's art style will shape the overall look for SimEnergy.

* **SimRefinery** -- Produced in 1992. SimEnergy will be based on the new object-oriented simulation technology first used in SimRefinery. SimRefinery's method of following interconnections between elements of a system will also be used in SimEnergy.

MAXIS STAFF MEMBERS:

* Executive in charge of project: John Hiles; age 46; B.A.; 20 years in software product development; in charge of production for SimRefinery and SimEnvironment.

* Chief Programmer: Bruce Skidmore; age 36; B.S.; 15 years programming experience building microcomputer products; Chief programmer SimRefinery.

* Tools Programmer: Greg Rossi; age 37; B.S.; 15 years systems programming and graphics programming experience; Chief Programmer Maxis Development System (used to build SimRefinery and SimEnvironment).

* Simulation Model Design: Bruce Montague; age 36; 16 years systems programming experience; B.S., Ph.D. candidate at Univ. California, Santa Cruz; Chief Programmer on SimEnvironment.

* Advisor Model Design: Will Wright; age 31; Co-founder of Maxis; creator and chief programmer on SimCity, SimEarth, and SimAnt.

* Art Director: Jenny Martin; age 30; Art Manager for Maxis on all entertainment products.

COSTS FOR SimEnergy

Maxis Business Simulations normally submits a fixed price bid for simulation projects. To comply with this RFP, Maxis will use the following rough estimate of costs for building SimEnergy. Responsibility for items such as packaging, teacher and student classroom materials, teacher training, and similar items are not yet defined. At the completion of this project's design phase those items should be much better understood. After the Design Study phase, in cases where Maxis will have responsibility for items in this category, Maxis will produce a subsequent cost estimate when these items are defined.

COSTS:

(Mr. Majima, this part will follow later this evening.)